REMARKS

This is in response to the Office Action dated March 22, 2007. Applicants unintentionally failed to respond to the Office Action, which resulted in the application being abandoned. During a telephone conference with the Examiner on November 16, 2007, applicants' representative indicated that the application would be revived. A Petition For Revival Of An Application For Patent Abandoned Unintentionally Under 37 CFR 1.137(b), accompanied by the appropriate fee, is being filed concurrently herewith.

Claims 11 through 20 are pending in the application upon entry of this amendment. Claims 1 through 10 were previously canceled.

I. Claim Objections:

Claim 12 has been objected to by the Examiner on the grounds that the terms "amorphous polymers" and "crystallizing polymers" are not clear. The application as originally filed is replete with specific illustrative examples of amorphous and crystallizing polymers that would benefit from use of the claimed method.

In the Response filed December 21, 2006, applicants presented information regarding the definition of the objected to terms. The Examiner, at paragraph 6 of the current Office Action, states that it is not the definition of the terms that is objected to, but the scope thereof. Applicants again reference the subject specification, including the background thereof, as a teaching of what polymers will be advantageously affected by the process claimed. One skilled in the art, with this teaching as a guide, will be able to discern what groups of polymers are claimed.

Based on the foregoing, applicants respectfully request that the objection to claim 12 be reconsidered and withdrawn.

II. The 35 U.S.C. § 103 Rejections:

(A) Kobayashi et al. in view of Okabe et al.

Claims 11 through 14, 16 and 18 through 20 have been rejected under 35 U.S.C. § 103 over Kobayashi et al. (United States Patent No. 6,139,948) in view of Okabe et al. (United States Patent No. 4,725,472). Specifically, the Examiner contends that

Example 1-4 of Kobayashi et al. teaches a process whereby polylactic acid and silica particles are blended, extruded, cooled, and biaxially stretched at 70°C, but that it fails to indicate that the product is quenched. The Examiner then looks to Okabe et al. as teaching quenching of molten extrudate as part of a conventional process for making biaxially stretched polyester film. Finally, the Examiner acknowledges the failure of Kobayashi et al. to address the need for the quenched extrudate to be in the amorphous state (current claim 11, line 4-5), and further acknowledges the failure of Kobayashi et al. to address or teach the strain hardening phenomenon (current claim 11, line 1-2).

Kobayashi et al. relates to a coated aliphatic polyester film which is degradable in a natural environment, has good blocking resistance and is excellent in the durability of membrane effect due to small coefficient of variation in the membrane thickness. This is accomplished by the addition of a lubricant, an anti-blocking agent, or a combination thereof to an aliphatic polyester. Therefore, the reference teaches that either of these additives may be used, or that the additives may be used in combination. It discloses many types of each additive, and provides teaching as to how each is combined with the polyester. It does not refer to, discuss, suggest, or provide any indication of why it is important to control strain hardening, or how to accomplish the same.

(1) <u>The reference does not teach the need to quench the polymer composition to achieve an amorphous state</u>.

Claim 11 recites, in pertinent part:

"quenching the polymeric composition to yield an amorphous polymeric composition;"

Kobayashi et al. do not address this claim limitation, because there is no reason for them to specify such a process parameter. There is no reason for the reference to require that an amorphous polymeric composition be achieved. In contrast, this processing parameter is important to applicants' claimed process. See Specification: page 2, line 30 – page 3, line 4; page 6, lines 19-21; page 6, lines 27-31; Examples 1-10; and discussion of Figures, explaining the alteration of strain hardening on-set.

The Examiner states that it is obvious that the cooling step of Kobayashi et al. is a quenching step in light of the teaching of Okabe et al. He further states that it is obvious that the quenched extrudate would be amorphous because it has not been

crystallized, and that, based on the foregoing, though either of the references fail to even mention strain hardening, one skilled in the art would expect this phenomenon to occur because of similar processing. The Examiner's reasoning fails to take into consideration that neither reference teaches strain hardening, and that even if the Kobayashi et al. cooling step can be considered as a "quenching" step, due merely to Okabe et al. identifying a similar step by this term, there is no teaching as to the need to conduct the quenching step to yield an amorphous polymer composition. Again, as neither reference provides any teaching regarding strain hardening, there is no reason for either to suggest or teach the need to achieve the amorphous polymer composition state now claimed.

Furthermore, as is stated in the background of the invention, not all polymers achieve an amorphous state below their melting point and then are capable of achieving strain hardening above their glass transition temperatures while in a rubbery state. In other words, the present invention as is recited in claims 11 through 20 specifically focuses on those polymer materials that are quenchable into an amorphous state but subsequently strain hardenable above their glass transition temperatures while in a rubbery state. The addition of nanoparticles to the polymer allows one to control the point at which strain hardening is initiated, and thus to better control the properties of resulting products.

The references, taken alone or together, provide no teaching to strain hardening, as pointed out by the Examiner. The process claimed in the subject application is directed to a process to control strain hardening. The Examiner has not established a reason for one skilled in the art to consult the cited references, as they lack any indication that the processes set forth therein will affect strain hardening. Applicants' disclosure provides the only teaching as to how to control strain hardening. While there is no reason for one skilled in the art to consult these references for strain hardening, there is further no reason for one to even consider the affect of the processing steps of the cited references without the use of the subject teaching as a guide.

(2) <u>The Kobayashi et al. reference teaches the interchangeable use of lubricants and anti-blocking agents, or the combined use thereof.</u>

The examples of the reference, with the exception of Example 1-4, do not even

address the use of the anti-blocking agent taught therein. It is this component that the examiner appears to equate with applicants' nanoparticle additive, specifically pointing out Example 1-4. A fair reading of the full disclosure of Kobayashi et al., however, would lead one to the use of the lubricant suggested therein, as set forth in the remaining examples of the reference, and not to use the anti-blocking agent. In fact, given the full teaching of Kobayashi et al., one would be more likely to add a lubricant than an anti-blocking agent. See the reference Examples where the only example that actually employs an anti-blocking agent, which the Examiner is equating with the claimed nanoparticle, is Example 1-4, cited by the Examiner. For the Examiner to suggest that a mere similarity in process steps, without any provision of how to choose from among the options provided by the reference, some of which are wholly inapplicable, in order to achieve a goal which is never even suggested by the reference, is inappropriate hindsight on the part of the Examiner. As is stated above, there is no reason found in the cited references, whether taken alone or together, for one skilled in the art to consult these references with regard to controlling strain hardening in a polymeric composition. Even if one were to consult these references, they would be more likely to use the lubricant set forth in Kobayashi et al. than the anti-blocking agent. Kobayashi et al. fails to address, suggest or teach strain hardening, does not provide any means for one consulting the reference to choose to use a nanoparticlulate material in accord with the claimed invention, instead of a lubricant, and as such does nto make obvious the claimed invention.

(3) The kobayashi et al. reference does not teach the phenomenon of strain hardening.

The Examiner acknowledges that the reference fails to teach the phenomenon of strain hardening. He seems, however, to be suggesting that achieving strain hardening is an inherent benefit of the Kobayashi et al. or Okabe et al. process. Nothing contained in the reference would motivate one of ordinary skill in the art to consult the reference with regard to strain hardening, nor is there any indication or teaching as to how to choose a nanoparticle for combination with a polymer in order to control the point at which strain hardening is induced. Absent some explicit evidence or teaching as to why to add the nanoparticle to the polymer with regard to the property of strain hardening,

the Examiner can not rely on an inherency argument to reject pending claims 11-14, 16 and 18-20 over the combination of Kobayashi et al. and Okabe et al.

In this regard, the Examiner is reminded of the following. The fact that a certain result or characteristic may occur or may be present in the prior art, based solely on a similarity in processing conditions, without any indication in these same references as to how to choose specific components or how to achieve specific physical states, i.e. quenching to achieve an amorphous state, is not sufficient to establish the inherency of that result or characteristic, or an expectation for it to occur. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Here, the reference does not necessarily provide for the use of nanoparticles, or the use of a quenching step, and as such can not be expected to provide a teaching for one skilled in the art which could recognizably produce the claimed result, i.e., a process to control that point at which the on-set of strain hardening occurs. In re Robertson, 49 USPQ.2d 1949 (Fed. Cir. 1999). Furthermore, it is well settled that "[i]nherency . . . may not be established by probabilities or possibilities. There mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. *quoting* In re Oelrich, 212 USPQ 323, 326 (CCPA 1981).

Given the foregoing, applicants respectfully request that the Examiner reconsider the rejection of claims 11-14, 16, and 18-20 over the combination of Kobayashi et al. and Okabe et al. and withdraw the same.

(B) Qian et al. in view of Haruta et al. or Ishibashi et al.

The Examiner has further rejected claims 11 through 20 under 35 U.S.C. § 103 over Qian et al. (United States Patent No. 6,407,155) in view of Haruta et al. (United States Patent No. 3,773,609) or Ishibashi et al. (United States Patent No. 5,180,626). Specifically, the Examiner contends that Qian et al. teach a method to make nanocomposite materials by forming a mixture of polymer matrix and nanoparticulate filler in the amount of 0.05 to 60% by wt. and melt blending the mixture, and the use of these nanocomposites in biaxially stretched films. Qian et al. has been previously addressed by applicants in response to a prior citation thereof. As such, applicants rely on those arguments in regard to the technical relevance of this reference to the subject

claims. The secondary references are merely cited to show conventional processing with regard to biaxially stretched films. The Examiner acknowledges, as with regard to the references discussed hereinabove, the failure of these new citations to teach, suggest or in any way indicate quenching to achieve an amorphous polymer composition or the phenomenon of strain hardening.

Applicants, rather than repeat the argument presented hereinabove, rely on the same under this rejection as it is equally applicable here. The Examiner has again made a leap in combining references that in fact provide no teaching for how to achieve applicants' claimed process – to control strain hardening – and determined that the provision of similar processing steps, without any supportive teaching as to how to properly choose components, physical state of the material, or other processing and material parameters, nonetheless makes obvious the claimed process. This smacks of impermissible hindsight. Without use of the teaching in applicants' disclosure, one skilled in the art would not know how to achieve strain hardening control. The references fail to put one in possession of the invention. Further, it would be impossible for one to know how to manipulate strain hardening, using % composition and processing parameters, if one was without any knowledge of what end result was being attempted.

Based on the foregoing, applicants respectfully request that the Examiner reconsider the rejection of claims 11-20 over the combination of Qian et al. with either Haruta et al. or Ishibashi et al. and withdraw the same.

III. Conclusion:

For at least the foregoing reasons, the claim objections under 35 U.S.C. § 112 and claim rejections under 35 U.S.C. § 103 are believed to be unfounded, and withdrawal thereof is believed due and is respectfully requested. Further, the present application is believed to be in condition for allowance, and a Notice of Allowance is respectfully requested.

Should the Examiner wish to discuss any of the foregoing in more detail, the undersigned attorney would welcome a telephone call.

Respectfully submitted,

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